Work Order ID 60258

Wednesday, June 30, 2010 8:53:36 AM

Item ID: D212-664-107 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 7/7/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** M **Date:** 10-6-30 **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr / **Revision Nbr**: D212-664-147 / Rev B									
100	DOCUMENT CONTROL	0.00							
DC	**Memo**	0.00							
Document Control	Photocopy bluefile and create labels as per PPP D212-664-107 CHG001								
110	Packaging	0.00							
Packaging	**Memo**	0.00							
Packaging									
120	BENDING MACHINE - CROSSTUBES	0.00							
CNC Bend 2	**Memo**	0.00							
CNC Alpha 160 Bender	Bend tube as per Dwg D212-664-107 using CNC bender program 212-107								

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 60258

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Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

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Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00							
QC Quality Control	**Memo**	0.00				40			
140		0.00							
Crosstubes Crosstubes	Crosstubes					8	0		
	Memo	0.00							

1-Cut tube as per inspection dwg and deburr ends. ***ensure saw is square***

2-Position cuffs on tube ensure proper positioning

3-Drill tube as per dwg using DT8577 location #7 & # 212 ULF as per QSI 10

4-Trensfer drill rivet holes from cuff into tube.

5-Identify cuff position and Batch # on each.

6- Inspect surface damage

7- Deburr and realodine cuff.

8/10/08/13

MB/AWM

using Jig DT8548

AWM 10-05-04

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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NOTE: Date & initial all entries

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Required Date: 7/7/2010 **Req'd Qty:** 1.00 **Customer:**

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Run Start

Stop

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Crosstubes Chemical Conversion	0.00				1	~	AWM	
HandFXtube								10-05-09	
Hand Finishing Crosstubes	**Memo**	0							
160	QC3- Inspect Part Finish	0.00							
QC									
Quality Control	**Memo**	0.00							
170	QC5- Inspect part completeness to step on W/O	0.00							
QC									
Quality Control	**Memo**	0.00							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

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NOTE: Date & initial all entries

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QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00				CL	10/8/12		①
Outsource2	**Memo**	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: 12394 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190		0.00							
Packaging	Packaging					CL	10/8/12		①
Packaging	**Memo**	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
QC						JT	10-08-12		
Quality Control	**Memo**	0.00							
	Inspect for damage & ensure results are as per Dwg D212-664-107								

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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NOTE: Date & initial all entries

Work Order ID 60258

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Item ID: D212-664-107 **Accept** **Setup Start** **Stop**

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Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
Crosstubes	Crosstubes					RT	10-08-17		
Crosstubes	**Memo**	0.00							
Crosstubes	1-Rivet Cuffs as per Dwg D212-664-147. with Sika flex in Between tube & Cuff A/R SIKAFLEX -241/-291 BATCH: 115114								
220		0.00							
SprayPaint	SprayPaint					RT	10-08-23		
Spray Painting	**Memo**	0.00							
	1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2 PRIME: Start Time: 11:00 Fininsh Time: 12:00 PAINT: Start Time: 3:30 Finish Time: 4:30								

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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NOTE: Date & initial all entries

Work Order ID 60258

Wednesday, June 30, 2010 8:53:36 AM

Item ID: D212-664-107 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 7/7/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	QC14- Inspect Spray Paint	0.00				MM	10	08	24
QC	**Memo**	0.00							
Quality Control	Wrap in plastic bag to protect from scratches								
240		0.00							
Crosstubes	Crosstubes					RT	10.0825		
Crosstubes	**Memo**	0.00							
Crosstubes	1- Assemble as per Dwg D212-664-147								

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

3- Instal support with magnobond 6398 per dwg D212-664-147, cure for 12hrs before packaging.

Time & date of application: 10-08-25 1:00
Batch: 114158
EXP. DATE 11-08-03

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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NOTE: Date & initial all entries

Work Order ID 60258

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Item ID: D212-664-107 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 7/7/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00				40			
	Memo	0.00 10/08/26							
255 Packaging Packaging	Pick Kit	0.00				10/8/26			
	Memo	0.00							
260 QC Quality Control	QC4- 100% Inspect kits for completeness	0.00				40			
	Memo	0.00 10/08/26							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Revision ID: **Stop**

Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 7/7/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
Packaging	Packaging								
Packaging	**Memo**	0.00							
Packaging	Identify and pack for shipping as per PPP D212-664-107								
280	QC21- Final Inspection - Work Order Release	0.00							
QC	**Memo**	0.00							
Quality Control									

Rev A

10/8/26 MF

10/8/26 MF

10-8-26

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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NOTE: Date & initial all entries

Picklist Print

Wednesday, June 30, 2010 8:53:40 AM

Work Order ID: 60258

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Required Date:** 7/7/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP Rev:A New Issue 07.09.12 EC verified by: JLM
IPP Rev:B ECN 1100 08-01-11 DD verified by: EC
IPP Rev:C Ecn 1121 08-02-25 DD Verified by:ec IPP Rev:D
10.05.27 added pick kit DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-107TRN		Manufactured	No			140	Each	2.0000	1	1			
Crosstube Turning Detail										B-50706 MB 10-08-03			
				Location			**Loc Qty**		**Loc Code**				
				LG			2						
					58588		1						
					58611		1						
D3659-1		Manufactured	No			220	Each	9.0000	2	2			
CUFF										MB 10-08-04			
				Location			**Loc Qty**		**Loc Code**				
				ST477			9						
					50691		9			QX			
CR3212-4-06		Purchased	No			240	Each	1,441.000	44	44			
CHERRY RIVET										ET 10-08-17			
				Location			**Loc Qty**		**Loc Code**				
				ST311			1441						
					112492		156						
					112612		285			x 44			
					112724		200						
					112794		800						

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Picklist Print

Wednesday, June 30, 2010 8:53:40 AM

Work Order ID: 60258

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Required Date:** 7/7/2010

Start Qty: 1.00 **Required Qty:** 1.00

D3595-063-450	Manufactured	No	240	Each	62.9790	4	4	
RUBBER CUSHION								

B60983 — ET 10-08-24

Location	Loc Qty	Loc Code
LG	62.97897368	
53775	5.97897368	
58161	12	
59580	45	

MS21920-25	Purchased	No	240	Each	112.0000	4	4	
Clamp(per MIL-DTL-8783C)								

B56354 — ET 10-08-24

Location	Loc Qty	Loc Code
LG	67	
113281	0	
114759	42	x1
114901	25	
ST451	45	
113281	5	
113282	18	
113744	1	
114141	21	x3

D2893-1	Manufactured	No	240	Each	32.0000	2	2	
2.75 Support								

ET 10-08-24

Location	Loc Qty	Loc Code
LG	32	
53340	2	
53774	10	
56354	20	x2

D3428-1	Manufactured	No	260	Each	0.0000	1	1	
Placard								

B60484 10/6/2010

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Picklist Print

Wednesday, June 30, 2010 8:53:40 AM

Work Order ID: 60258

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

Start Date: 6/30/2010 **Required Date:** 7/7/2010

Start Qty: 1.00 **Required Qty:** 1.00

AN6-35A BOLT	Purchased	No		260	Each	34.0000	4	14 M115402 SC 10/8/26

Location	Loc Qty	Loc Code
ST343	34	
113422	30	
114341	4	

AN6-36A Bolt	Purchased	No		260	Each	88.0000	4	4 10/8/26 SC

Location	Loc Qty	Loc Code
ST343	88	
114330	38	
115016	50	

MS21042L6 Nut	Purchased	No		260	Each	241.0000	6	6 10/8/26 SC

Location	Loc Qty	Loc Code
ST300	241	
111578	41	
114495	200	

AN960JD616 NAS1149D0663J Washer	Purchased	No		260	Each	0.0000	18	18 M114988 10/8/26 SC

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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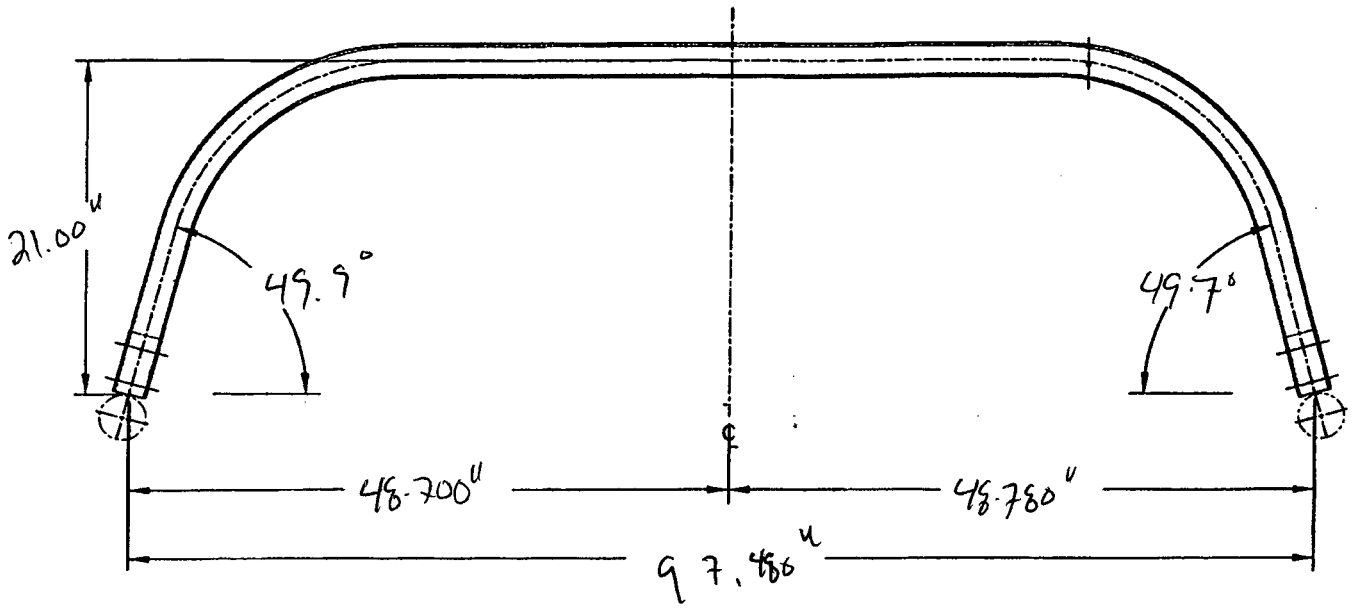
NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	60258
Description: Crosstube Low Fwd (205/212/412)	**Part Number:**	D212-664-107
Inspection Dwg: D212-664-147 **Rev:** B		Page 1 of 1

Required Dimension	Min	Max
Height	20.79	21.05
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62



Comments

QC15 Inspection	
Date	10/08/03

Rev	Date	Change	Revised by	Approved
A	08.02.29	New Issue	KJ/JM	
B	10.01.21	Dwg Rev updated	KJ	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Item	Qty -147	Qty -147B	Part Number	Description
1	X		D212-664-147	CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)
2		X	D212-664-147B	CROSSTUBE ASSEMBLY (214 LOW FWD)
3	1	1	D6019-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	2	2	D3659-1	CUFF
7	4	4	MS21920-25	CLAMP (OR MS21920-26)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6019-128
   FINISHED LENGTH = 126.528±0.020 (BEFORE BENDING/TRIMMING)
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: D212-664-147 = 24.2 lbs (PER IIN-D212-664)
   D212-664-147B = 24.2 lbs (PER IIN-D212-664)
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
16) INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

RETURN TO ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT WITHOUT NOTICE
WORK ORDER NO. 40238

RELEASED
2009 -10- 29

REV.	DESCRIPTION	BY	DATE
B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS; ADD -147B (ZN C4-2, D4-2)	RF	09.09.30
A	NEW ISSUE	CP	07.07.07

DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-147	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212/412 LOW FWD)	NTS
DATE	09.09.30		

Dart Aerospace Ltd

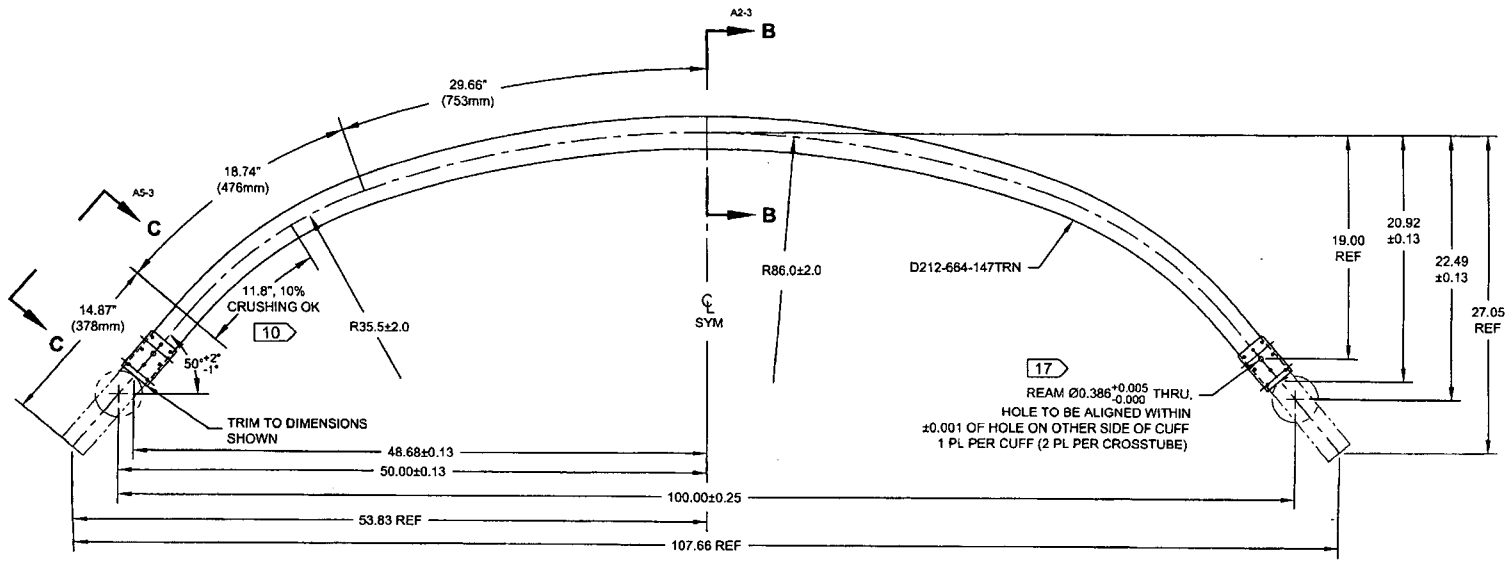
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

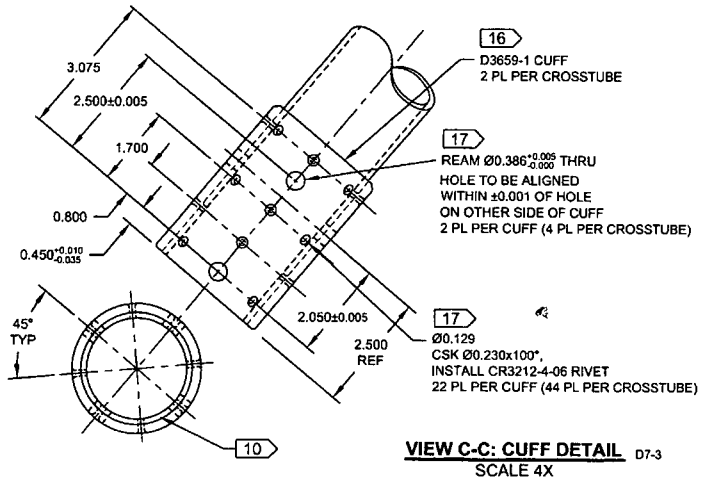
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

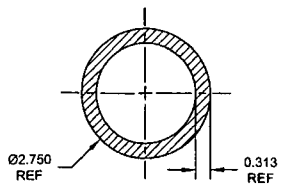
NOTE: Date & initial all entries



D212-664-507
BENDING AND DRILLING DETAIL 10 B



VIEW C-C: CUFF DETAIL D7-3
SCALE 4X



SECTION B-B D5-3
SCALE 4X

RELEASED
2009 -10- 29

DESIGN		DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. REV. B
MFG. APPR.		D212-664-147 SHEET 3 OF 4
APPROVED		TITLE SCALE
DE APPR.		CROSSTUBE (205/212/412 LOW FWD) NTS
DATE	09.09.30	

Dart Aerospace Ltd

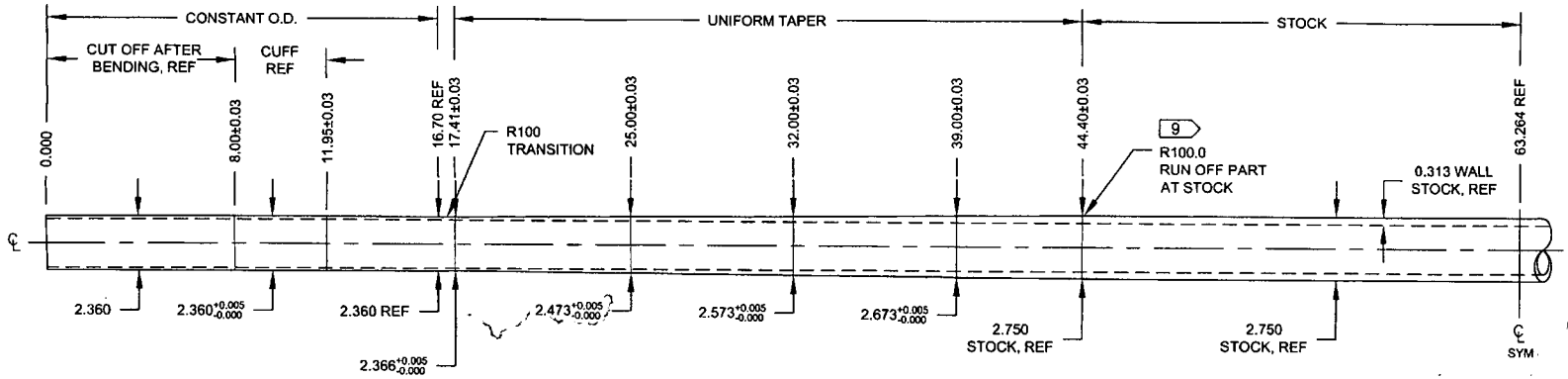
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries



D212-664-147TRN
TURNING DETAIL

ol/b 60258

RELEASED
2009 -10- 29

DESIGN		**DART AEROSPACE LTD**	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-147	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212/412 LOW FWD)	NTS
DATE	09.09.30		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

5.2 STANDARD GEAR CROSSTUBES

Item	-107	-207	-209	Part Number	Description
	X			**D212-664-107**	**CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD**
		X		**D212-664-207**	**CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT**
			X	**D412-664-209**	**CROSSTUBE INSTALLATION, 412 STANDARD AFT**
6	1			D212-664-147	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
7		1		D212-664-247	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
8			1	D412-664-249	CROSSTUBE ASSEMBLY, 412 STANDARD AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
45	2			* D3659-1	CUFF
46		2	2	* D3660-1	CUFF
47	44	44		* CR3212-4-06	RIVET (M7885/3-4-06)
48			44	* CR3212-4-07	RIVET (M7885/3-4-07)
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-147/-247 OR D412-664-249 ASSEMBLIES ABOVE
NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA SKIDTUBES.

ACUREN

LIQUID PENETRANT TEST REPORT

P- 05489

PAGE 1 OF 1

CLIENT	DART AEROSPACE	DATE	AUG/13/2010 TIME AM ☑ PM ☐
ATTENTION	LINDA LACELLE / CHANTAL / ...	ACUREN JOB NO.	138-10-0795
ADDRESS	1270, ABERDEEN	PO/WO NO.	
	HAWKESBURY ON	WORK LOCATION	AS ADDRESS
		ACCEPTANCE STD.	ASTM1417 & CSI-038 REV./DATE 2005
PROJECT	W.F.P.T. ON 6 X CROSSTUBES		
ITEM(S) EXAMINED	SEE W.O. # BELOW IN RESULTS		

JOB DESCRIPTION PROCEDURE NO. LT-002 REV./DATE 2008 TECHNIQUE NO. LT-002 REV./DATE 2008

PART NO. MATERIAL ALODINE ALUMINIUM THICKNESS N/A

SCOPE Performed a Wet Fluorescent Liquid Penetrant Inspection on 100% of THE EXTERNAL SURFACE

TEST DETAILS

METHOD	☑ FLUORESCENT ☐ VISIBLE	☑ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED	
FAMILY BRAND	MAGNAFLUX	BLACK LIGHT S/N 13798 ☑ OUTPUT > 1000 µ W/CM² ☐ AMBIENT < 2 fc	
PENETRANT	ZL-67 MINIMUM DWELL TIME 10 MIN.	LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT>100 fc @ SURFACE	
PENETRANT REMOVER	H2O MINIMUM DRY TIME >10 MIN.	OTHER	
DEVELOPER	SKD-S2 MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N	CAL DUE DATE NOV/06/2010
DEVELOPER TYPE	☑ NON AQUEOUS ☐ AQUEOUS ☐ DRY		

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☑ CLEAN BARE METAL

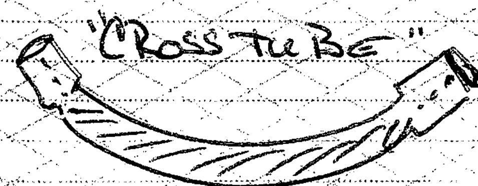
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☑ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☑ IMPERIAL)

ITEM	COMMENTS	ACCEPT	REJECT
#	WET FLUO L.P.I. ON 100% EXTER SURF.	✓	✗
1	CROSS TUBE - W.O. ID 59887	✓	
2	CROSS TUBE - W.O. ID 59888	✓	
3	CROSS TUBE - W.O. ID 61074	✓	
4	CROSS TUBE - W.O. ID 61075	✓	
5	CROSS TUBE - W.O. ID 60258	✓	
6	CROSS TUBE - W.O. ID 60259	✓	

JT 10-08-17

ITEM ID: - D407-667-205 (ITEM # 1 & 2)
ITEM ID: - D212-664-101 (ITEM # 3 & 4)
ITEM ID: - D212-664-107 (ITEM # 5 & 6)



Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE Ron Titley (PRINT) [signature] (SIGNATURE) DTR # E48667

TECHNICIAN (SIGNATURE): [signature] REPORT REVIEWED BY:

NAME (PRINT): WES DESROSIERS NAME INITIALS

1ST TECHNICIAN: CGSB LEVEL 2 SNT LEVEL 2 CGSB REG. NO 3041

2ND TECHNICIAN: CGSB LEVEL — SNT LEVEL — CGSB REG. NO —

WHITE – CLIENT COPY CANARY – OFFICE COPY PINK – TECHNICIAN COPY GOLD – OFFICE COPY

PT-S